

PART 1 GENERAL

- | | | | |
|------|-----------------------------|---|--|
| 1.1 | <u>General Requirements</u> | .1 Comply with requirements of Division 1 | |
| 1.2 | <u>Related Sections</u> | .1 Cast in place concrete
.2 Masonry
.3 Structural Steel
.4 Wood Blocking
.5 Air Barrier
.6 Insulation
.7 Sealant
.8 Metal Doors & Frames
.9 Finishing Hardware
.10 Glazing | Section 03300
Section 04200
Section 05100
Section 06100
Section 07196
Section 07200
Section 07900
Section 08100
Section 08710
Section 08800 |
| .1.3 | <u>Formed Metal Panels</u> | .1 It is a requirement that all of the work associated with prefinished Formed Metal Panels related to window system is to be installed by this section to provide a complete system | |
| 1.4 | <u>Reference Standard</u> | .1 Do sealant work in accordance with Section 07900 unless otherwise specified herein.
.2 Do glazing work in accordance with Section 08800 unless otherwise specified herein. | |
| 1.5 | <u>Qualifications</u> | .1 Work of this section is to be done by Manufacturers of recognized standing, having personnel with minimum five years experience in this type of work and who have the necessary equipment to carry out the work. | |
| 1.6 | <u>Guarantee</u> | .1 Provide the following Guarantee in accordance with the General conditions of the Contract, notwithstanding the time provisions therein. Five years material and labour to cover the following
.1.1 Replace any window unit whose finish shows any defects such as but not limited to delamination, blistering or excessive fading.
.1.2 Replace or repair any window unit with air and water leakage, defects and malfunctions under normal usage. | |
| 1.7 | <u>Submittals</u> | .1 <u>Shop Drawings</u>
.1.1 Submit shop drawings in accordance with the General Conditions
.1.2 Clearly indicate materials and large scale details for head, jamb and | |

-
- sill, profiles of components, elevations of unit, anchorage details, location, coating, description of related components and exposed finishes and fasteners.
- .1.3 All shop drawings for curtain wall systems must bear the stamp of a professional engineer.
- .2 Samples
- .2.1 Submit one representative model of each type aluminum window, door or screen.
- .2.2 Show frame, sash, sill, glazing and waterproofing method, insect screens, surface finish and hardware. Include 150 mm. long samples of head, jamb, sill, meeting rail, mullions to indicate profile.
- .3 Maintenance Data
- .3.1 Submit maintenance data for cleaning and maintenance of aluminum windows for incorporation into maintenance manual.
- 1.8 Inspection and Testing .1 The Owner may appoint and pay, out of the allowances carried in Section 01020, for an independent inspection agency to inspect and test the work of this section as directed by the Consultant.
- 1.9 Work Supplied to Other Trades .1 Supply to other Sections anchors, inserts and items; where necessary provide templates, diagrams or other suitable means of instruction.
- 1.10 Design Criteria .1 Design window systems to withstand, without any detrimental effects to appearance and performance, wind loads and temperature range expected in geographical area of this project (OBC climatic information, 30 year probability) unless specified otherwise.
- .2 Prevent water infiltration and penetration in any form.
- .3 Design window systems to perform as an effective air and vapour barrier.
- .4 Thermal expansion and contraction of systems components.
- .5 Movement deflection and creep of building structural frame.
- .6 Limit deflection of component parts under maximum design load to 1/175 of span or less if required by glass manufacturer.
- .7 Fabrication Tolerances: overall height, width and diagonal dimensions of frames shall be within the following tolerances:
Dimension of 72" and less; (+) (-).080"
Dimension of 72" or more; (+) (-).140"

- .8 Contractor shall submit test data on doors, screens and windows being proposed, prepared by an approved testing laboratory. The window unit described herein shall meet the local requirements for operating vents and fixed framing per:

CSA/A440-00

- 1.11 Acceptable Manufacturer .1 Product Qualifications: The Specification and drawings are based on aluminum windows as manufactured by Sherwood Windows Limited whose quotation shall form the base bid. Other manufacturers products with similar profiles, material and finishes that meet the standards established by the Specification must be listed as and alternate showing a credit or extra to the contract.

PART 2 PRODUCTS

- 2.1 Materials .1 Systems
- .1.1 Window Framing: Sherwood TB-502
- .1.2 Window Vents: Sherwood 237 Vent Insert
- .2 Aluminum Window Extrusions: Extruded alloy AA 6063-T54 mechanically straightened and free of marks and be of size and shape as specified and detailed.
Minimum extrusion wall thickness of .100"
- .3 Aluminum Plate and Sheet: AA 1100 alloy
- .4 Steel Sections and Plates: to CSA GRO 21d-M1978 Type 300W. Hot dip galvanized with minimum zinc coating of 600g/M2
- .5 Bolts and Anchor Bolts: to ASTM A307-7613, hot dip galvanized with minimum zinc coating of 600 g/m2 to CSA G16a-1972
- .6 Steel Reinforcing: for screens to CSA G40.2, Class H
- .7 Flashings: .80" aluminum finished to match windows and entrances
- .8 Glass and Glazing Materials: Conform to the requirements of Section 08800 Glazing.
- .9 Spandrel Panels:
- .9.1 Aluminum Sheet: AA110-H14 or A43003 H14 Alloy, anodizing quality.
- .9.2 Insulation: AF530 by Fiberglass

- .9.3 Insulation Clips: Type “N” Sticklip and type “S” adhesive as manufactured by Eckel Industries Ltd. or gun welded steel pin.
- .9.4 Adhesives: As manufactured by manufacturer of material to be bonded.
- .10 Caulking Materials
- .10.1 Sealant: two part polyurethane terpolymer to CAN/CGSB-19.24-M80: acceptable product: Tremco dymeric, colour selected by Consultant.
- .10.2 Primer: As recommended by sealant manufacturer.
- .10.3 Joint backing: Foamed, closed cell polyethylene rope, minimum ½” wider than joint, compressed when installed.
- .11 Foam Sealant: One component polyurethane foam sealant “Insta Seal;” by Insta-Foam.
- .12 Sills: .080” formed or extruded aluminum shapes of proper size and fastening type to suit wall conditions and as detailed, complete with joint covers and drip deflectors.
- .13 Operable Venting Hardware: Top hinged open-out or bottom hinged open-in vents to have extruded aluminum hinges with stainless steel pins, clear anodized aluminum under screen chain drive operators.
- .14 Vent Screens: Standard top hinge open-out bug screen configuration.
- .15 Miscellaneous Materials
- .15.1 Flexible Flashings: .039” thick Perm-A-Barrier flashing by W.R. Grace & Co.
- .15.2 Bituminous paint: alkali resistant asphaltic enamel.
- .15.3 Bedding Compound: non-hardening and non-skinning.
- .15.4 Assembly Screws: Stainless steel.
- .15.5 Anchor Screws and Bolts: Stainless steel or CAD plated
- .15.6 Gaskets: E.P.D.M.
- .15.7 Thermal Break: extruded, rigid polyvinyl chloride keyed into aluminum members.
- .15.8 Aluminum Closers: Closures, caps, flashings, panels as detailed

-
- from .080" aluminum to match frame.

 - 2.2 Fabrication
 - General
 - .1 Aluminum components shall be extruded Section and shapes unless otherwise specified.
 - .2 Framing shall consist of closed tubular aluminum sections reinforced if necessary, thermally broken.
 - .3 Open channel profiles are not acceptable.
 - .4 Make allowances for deflection of structure. Ensure that structured loads are not transmitted to windows.
 - .5 Design work so that it will not be distorted nor fasteners overstressed from expansion and contraction of metal.
 - .6 Internally reinforce framing members where fastening for work of other section is required and to withstand loads and deflection within allowable limits.
 - .7 Fastenings shall be concealed where possible. Where concealed fasteners cannot be used, use countersunk flathead screws with finish to match base metal on which they occur.
 - .8 Manufacturer's nameplates on windows and doors are not permitted.
 - .9 Allow for vertical expansion and contraction of curtain wall framing.
 - .10 Insure any moisture entering or forming inside systems drains to the exterior.
 - .11 Fabricate aluminum sills to profiles indicated to suit wall conditions. Provide drip deflectors at sill ends and at abutting vertical surfaces. Open ends of sills shall be fitted with neatly applied closure plates. Unless otherwise detailed provide flush slip joint at intermediate sill joints.
 - .12 Stools, cap flashings, closures, covers and trim shall be extruded or formed to profiles shown and unless otherwise shown, minimum 3mm thick.

 - 2.3 Ventilation
 - Units
 - .1.1 Ventilator frames shall consist of inner and outer aluminum frame sections joined by means of an interlocking thermal barrier. Thermal barrier shall completely prevent metal to metal contact in any form. Vent corner shall be cut at 45 degrees, swaged with 3 heavy-duty reinforcing angles per corner. Screwed corners on vents will not be permitted.
 - .1.2 Limit the distance a vent may open to 6"

 - 2.4 Doors &
 - .1 Aluminum Entrances

Frames

- .1.1 Supply and install aluminum doors in thermally broken aluminum frames and screens.
- .1.2 Aluminum doors shall be Sherwood Windows Limited Series W-2000 wide stile doors. Doors to be 2” thick and shall have 4, 6 or 8” head, 4,6 or 8” stiles, 4, 6, 8 or 10” bottom and centre rails. Doors shall be insulated with polyurethane. Provide insulated aluminum panels in lower portion of doors where shown on drawings.
- .1.3 Corner construction shall be butt joined with two hidden welds. At each corner, welds shall be of the inert gas process with maximum penetration and without heat discoloration on exposed surfaces.
- .1.4 Aluminum frames and screens for aluminum doors shall be Sherwood Windows TB 502 Series to match window profiles with ½” solid aluminum bar reinforcing.
- .1.5 Prepare for and install finishing hardware on aluminum doors. Provide cutouts, recesses, mortising required for finish and operating hardware. Coordinate with Section 08710.
- .1.6 Provide rails and transoms to sizes and profiles shown in these Specifications.
- .1.7 Make provision for concealed magnetic door switches as specified.

2.5 Finishes

- .1 Aluminum windows, entrances and vents: Clear anodized/painted

2.6 Display Case

- .1.1 As shown on drawings, supply and install aluminum display case framing as detailed.
- .1.2 Provide cylinder lock for each operable door.

PART 3 EXECUTION

3.1 Framing

- .1.1 Erect and secure framing systems and window units plumb, square and level, free from warp, twist and superimposed loads.
- .1.2 Anchor framing systems to supporting building elements; building elements; provide brackets, anchor clips as required. All devices for anchoring shall have sufficient adjustment to permit correct and accurate alignment. After alignment, rivet, weld or otherwise positively lock anchoring devices to prevent movement other than that required to accommodate expansion, contraction and deflection.
- .1.3 Anchor immediate vertical frame members to structure above as required. Where support for intermediate vertical frame members is not available directly above head, provide frame extensions to

structure above. Provide flexible connection at structure to allow for movement.

- .1.4 Anchor window jamb members to adjacent building elements near top and bottom and at maximum 24” in between
- .1.5 Provide necessary inserts to be built into work of other Sections as required for anchorage of framing.
- .1.6 Set frame members in bedding compound to ensure watertight assembly.
- .1.7 Metal to metal joints between abutting components shall be sealed weathertight.
- .1.8 Use concealed fastening where possible, where not possible, use flathead screws in countersunk hole. Match exposed fastenings with base metal on which they occur.

3.2 Spandrel Panels

- .1.1 At spandrel panel locations, install back-up panel into framing and seal airtight. Use aluminum panels at all locations.
- .1.2 Adhere insulation clips to back-up panel at maximum 12” o.c. both ways.
- .1.3 Apply adhesive to back-up panels and embed insulation boards. Fit boards tightly and accurately, leave no voids or gaps. Place retainer discs over pins. Unless noted otherwise provide 2” thick insulation.

3.3 Glazing

- .1 Glaze openings in accordance with window and glass manufacturer’s installation.

3.4 Sealants

- .1.1 Seal joints in accordance with window and sealant manufacturer’s recommendations and in accordance with Sealants Section 07900.
- .1.2 Provide caulking between framing members and adjoining work and where required to render work of this Section weathertight.
- .1.3 Provide for continuity of air and vapour barrier in all locations; join up with air/vapour barrier in all locations; join up with air/vapour barrier components of adjacent systems.
- .1.4 Install polyurethane foam sealant in all voids between framing and surrounding building elements.
- .1.5 Where indicated provide membrane flashing located within or abutting framing systems.
- .1.6 Where indicated, and where required to maintain continuity of air

- barrier, install galvanized sheet metal closures at terminations of framing systems and effectively seal to adjacent building elements.
- 3.5 Sill Installation

 - .1.1 Install metal sills with uniform wash to exterior level in overall length, straight in alignment with plumb upstands and faces. Use maximum lengths possible allowing for expansion.
 - .1.2 Secure sills in place with anchoring devices located at ends and at 24” o.c. in between.
 - .1.3 Fasten drip deflectors with self tapping stainless steel screws.
- 3.6 Cover Closures & Trim

 - .1 Provide stools, covers, closures and trim as indicated and as required to provide complete and finished installation.
- 3.7 Final Cleaning & Adjustment

 - .1 When instructed by Consultant and after the Substantial Completion of the project, perform the following work:
 - .1.1 Remove any protective coatings or tapes from windows.
 - .1.2 Wash all interior and exterior work installed under this section with a mild solution of tri-sodium phosphate and water.
 - .1.3 Rinse all surfaces and polish with a soft dry cloth.
 - .1.4 Reset and tighten all glazing studs. Touch up any scratches and abrasions on frames.
- 3.8 Field Testing

 - .1.1 Carry out field testing of a typical installed window. Testing to be conducted by an accredited testing laboratory or engineering firm appointed by Consultant and paid for by Owner.
 - .1.2 Testing to be conducted to local requirements per CSA/A440-00.
 - .1.3 Copies of test reports to be provided to contractor.
 - .1.4 Perform air infiltration test before water resistance test.
 - .1.5 At conclusion of tests there shall be no glass breakage, damage to fasteners, hardware parts or any other damage.
 - .1.6 Repair or replace work failing these tests without cost to Owner. Retest subject window to satisfaction of Consultant.
 - .1.7 Inspect window unit for damage and correct damage if found.